



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/540,694	04/14/2006	Jingxin Liang	CN02 0046 US1	2387
65913	7550	02/25/2009	EXAMINER	
NXP, B.V. NXP INTELLECTUAL PROPERTY DEPARTMENT M/S41-SJ 1109 MCKAY DRIVE SAN JOSE, CA 95131			WILLIAMS, LAWRENCE B	
			ART UNIT	PAPER NUMBER
			2611	
			NOTIFICATION DATE	DELIVERY MODE
			02/25/2009	ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

ip.department.us@nxp.com

### Office Action Summary

**Application No.**

10/540,694

**Applicant(s)**

LIANG ET AL.

**Examiner**

LAWRENCE B. WILLIAMS

**Art Unit**

2611

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 14 April 2006.  
2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.  
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-18 is/are pending in the application.  
4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.  
6) ☒ Claim(s) 1-18 is/are rejected.  
7) ☒ Claim(s) 1-18 is/are objected to.  
8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.  
10) ☒ The drawing(s) filed on 14 April 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☒ All b) ☐ Some \* c) ☐ None of:  
1. ☒ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)  
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)  
3) ☐ Information Disclosure Statement(s) (PTO-8508)  
Paper No(s)/Mail Date \_\_\_\_\_

- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_  
5) ☐ Notice of Informal Patent Application  
6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Specification***

1. 35 U.S.C. 112, first paragraph, requires the specification to be written in "full, clear, concise, and exact terms." The specification is replete with terms which are not clear, concise and exact. The specification should be revised carefully in order to comply with 35 U.S.C. 112, first paragraph. Examples of some unclear, inexact or verbose terms used in the specification are:

- a.) "commonly seem implementation according to above theory" in line 7, page 2.
- b.) "Because higher value of sample X multiple X" in line 9, page 2.
- c.) "and then those ....." in lines 10-12 of page 2.
- d.) "The invention want to...." in line 16 of page 2.
- e.) "the system keeps goodish synchronization" in line 18 of page 2.

2. The example mentioned above by no means covers all of the unclear language and terms cited throughout the specification. The examiner suggests that the applicant thoroughly review the specification and make corrections accordingly such that the specification yields a clear, full and concise description of the invention. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

### ***Claim Objections***

3. Claim 1 is objected to because of the following informalities:

- a.) The examiner suggests, "A method of maintaining Synchronization Tracking in TDD Communications" in line 1. The examiner suggests applicant apply the same in the remaining dependent claims 2-12.
  - b.) The examiner suggests "the method for use in a terminal of a UE system" in line 2.
  - c.) The examiner suggests applicant define the acronym "UE" in line 2.
  - d.) the phrase, "in that is comprises" in line 2 is ambiguous.
  - e.) In a. the examiner suggests "dividing a midamble.
  - f.). Lines 3-4 cites, "the first one and the second one". There is insufficient antecedent basis for this limitation in the claim. The examiner suggests, "a first one and a second one".
- Appropriate correction is required.

4. Claim 6 is objected to because of the following informalities: The examiner suggests, "a peak amplitude" in lines 2-4.

Appropriate correction is required.

5. Claim 13 is objected to because of the following informalities:

- a.) The examiner suggests, applicant define the acronym "UE".
- b.) The examiner suggests, "a divider for dividing a midamble into two parts" in line 3.
- c.) The examiner suggests, "a comparator which compares two peak amplitudes" in line 6.

Appropriate correction is required.

6. Since the claims contain a great deal of errors, i.e., missing appropriate articles and grammatical errors, the examiner suggests that the applicant thoroughly review the language of the claims and make corrections accordingly such that the claims yields a clear, full and concise description of the claim subject matter. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the claims presented.

*Claim Rejections - 35 USC § 112*

7. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

8. Claim 1 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Step b. of claim 1 reads, “the auto-correlation property operation between the two parts mention above and the corresponding to local midamble, then two peaks are got”. This step is unclear. For example, is the step citing that an auto correlation is performed? The examiner suggests applicant review the entire claim and rewrite the claim to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 2-13 are rejected based on their dependency upon rejected claim 1.

9. Claim 2 is rejected under 35 U.S.C. 112, second paragraph. Claim 2 recites the limitation “said sample frequency” in line 2. There is insufficient antecedent basis for this limitation in the

claim. Claim 2 recites the limitation "the chip rate of TD-SCDMA system" in line 3. There is insufficient antecedent basis for this limitation in the claim.

10. Claim 5 is rejected under 35 U.S.C. 112, second paragraph. Claim 5 recites the limitation "said sampling time point" in line 2. There is insufficient antecedent basis for this limitation in the claim.

11. Claim 7 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 7 cites "positive results" in line 5. It is unclear as to what constitutes a positive result. Claim 7 recites the limitation "the distance between UE and Node-B" in lines 2-3. There is insufficient antecedent basis for this limitation in the claim. The examiner suggests applicant rewrite the claim to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

12. Claim 8 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 8 cites "negative results" in line 3. It is unclear as to what constitutes a negative result. Claim 8 recites the limitation "the number of positive or negative results" in lines 2-3. There is insufficient antecedent basis for this limitation in the claim.

13. Claim 12 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 12 reads, "characterized in that said midamble is the downlink synchronization". This phrase is ambiguous. The midamble can in no means be the downlink synchronization, but instead can be used for to achieve downlink synchronization. The examiner suggests applicant rewrite the claim to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

14. Claim 13 is rejected under 35 U.S.C. 112, second paragraph. Claim 13 recites the limitation "the two peaks" in line 6. There is insufficient antecedent basis for this limitation in the claim. Claim 13 recites the limitation "the local timer" in line 7. There is insufficient antecedent basis for this limitation in the claim. Claim 13 recites the limitation "said equipments" in line 9. There is insufficient antecedent basis for this limitation in the claim.

Claims 14-18 are rejected based on their dependency upon rejected claim 13.

15. Claim 14 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 14 reads, "characterized in that said divider who divided midamble into two parts which having same length". This phrase is ambiguous. The examiner suggests applicant rewrite the claim to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

16. Claim 17 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 17 reads, "characterized in that said midamble is the downlink synchronization". This phrase is ambiguous. The midamble can in no means be the downlink synchronization, but instead can be used for to achieve downlink synchronization. The examiner suggests applicant rewrite the claim to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

17. Claim 18 is rejected under 35 U.S.C. 112, second paragraph. Claim 18 recites the limitation "said  $\Omega$ " in line 2. There is insufficient antecedent basis for this limitation in the claim.

***Allowable Subject Matter***

18. Claims 1-18 would be allowable if rewritten or amended to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, and claim objections set forth in this Office action.

19. The following is a statement of reasons for the indication of allowable subject matter: the instant application discloses a method and terminal for maintaining synchronization tracking in TDD communication. A search of prior art records has failed to teach or suggest a method or terminal in which synchronization tracking is maintained by dividing a midamble into parts, using a autocorrelation property to achieve two peaks corresponding to the midamble parts,



comparing the amplitudes of the peaks and advancing or retarding a local time base dependent on the results of the comparing as disclosed in claims 1 and 13.

***Conclusion***

20. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

a.) Durrant et al. discloses dividing a preamble chip sequence into an odd preamble chip sequence and an even preamble chip sequence in US Patent 5,754,584.

b.) Demir et al. discloses in US Patent 6,760,365 Acquisition Circuit For Low Chip Rate Option For Mobile Telecommunication System.

c.) Bultan et al. discloses dividing a midamble, correlating and peak detection in US Patent 7,006,840 B2 Efficient Frame Tracking In A Mobile Receiver.

d.) Bultan et al. discloses dividing a midamble, correlating and peak detection in US 2005/0197160 A1 in Efficient Frame Tracking In A Mobile Receiver.

21. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lawrence B Williams whose telephone number is 571-272-3037. The examiner can normally be reached on Monday-Friday (8:00-6:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ghayour Mohammad can be reached on 571-272-3021. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

lbw  
February 23, 2009

/Lawrence B Williams/

Examiner, Art Unit 2611

/Mohammad H Ghayour/

Supervisory Patent Examiner, Art Unit 2611